Suction control attachment for ultrasonic aspirators

Technical note

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A hand control to regulate suction has been developed and refined for use with ultrasonic aspirators. The instrument and its use are described.

**Key Words** • ultrasonic surgical aspirator • cranial nerve • suction device • instrumentation

Ultrasound energy can be used to fragment and emulsify tissue. With the combination of devices to perform suction and irrigation into one hand-held, self-contained unit, it is possible to excise and evacuate tumor tissue simultaneously. The primary advantages involved with the use of ultrasonic emulsification and aspiration are: 1) the lack of mechanical manipulation of normal tissue; 2) the preservation of tissue planes; and 3) the absence of thermal effects. Clinical experience with the ultrasonic aspirator has led neurosurgeons to conclude that it is a useful tool for resection of firm fibrous types of lesions that are not widely resectable by standard techniques.\(^1\)\(^-\)\(^4\)

The capability and advantages of ultrasonic aspirators have been confirmed in various studies. However, currently available ultrasonic instruments have the disadvantage that they provide continuous suction. This is undesirable while working near delicate and important neural structures, such as cranial nerves, that may be drawn up and plug the tip. Suction units that are uncontrollable in terms of the amount of suction they exert can significantly injure vascular and neural tissues.\(^5\)

*Description of Device*

We have designed a suction-control attachment for the hand-piece of the ultrasonic aspirator (Fig. 1). With the suction-control attachment, called the "Egemen keyhole control," it is easy to adjust the suction with the thumb. When the keyhole is uncovered, the suction ceases, which is an excellent safety measure. If suction is desired, the surgeon can provide it by occluding the keyhole with his finger (Fig. 2). Undesired suction of the cranial nerves can be avoided by removing the finger from the keyhole.

We propose the use of the Egemen keyhole control for the safe and effective use of ultrasonic aspirators.
Suction control for ultrasonic aspirators

![Image](image_url)

**Fig. 2.** Photograph showing how suction can be provided by occluding the Egemen keyhole control with the finger.

**Disclosure**

This attachment is not a product of any company, but may only be used with written permission of the author by companies that are interested in developing it.

**References**


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